

CLAIM AMENDMENTS

1 1. (currently amended) A drill chuck comprising:
2 a chuck body centered on an axis and formed with a
3 plurality of forwardly open angled guide passages spaced about the
4 axis and with a radially open groove having an axially rearwardly
5 directed front face and an axially forwardly directed rear face;
6 respective jaws displaceable generally axially in the
7 passages and each having a row of radially outwardly directed teeth
8 exposed at the groove;
9 a tightening ring engaged in the groove between the faces
10 thereof, having an internal screwthread meshing with the teeth of
11 the jaws, formed with a front face axially confronting the front
12 groove face, and rotatable on the body about the axis, whereby
13 rotation of the ring on the body in a tightening direction moves
14 the jaws axially forward and radially together and opposite rota-
15 tion moves them axially backward and radially apart; and
16 an angled front spring washer ~~engaged between the front~~
17 faces having a front face bearing axially forward on the front face
18 of the groove and a rear face bearing axially rearward on the front
19 face of the ring and axially elastically deformable on axial
20 forward displacement of the tightening ring to permit limited
21 relative axial movement of the ring and body.

1 2. (currently amended) ~~The drill chuck defined in claim~~
2 ~~1 wherein~~ A drill chuck comprising:
3 a chuck body centered on an axis and formed with a
4 plurality of forwardly open angled guide passages spaced about the
5 axis and with a radially open groove having an axially rearwardly
6 directed front face and an axially forwardly directed rear face;
7 respective jaws displaceable generally axially in the
8 passages and each having a row of radially outwardly directed teeth
9 exposed at the groove;
10 a tightening ring engaged in the groove between the faces
11 thereof, having an internal screwthread meshing with the teeth of
12 the jaws, formed with a front face axially confronting the front
13 groove face, and rotatable on the body about the axis, whereby
14 rotation of the ring on the body in a tightening direction moves
15 the jaws axially forward and radially together and opposite rota-
16 tion moves them axially backward and radially apart; and
17 an angled front spring washer engaged between the front
18 faces and elastically deformable on axial forward displacement of
19 the tightening ring to permit limited relative axial movement of
20 the ring and body, the front spring washer is being dished and
21 engages engaging at least one of the front faces in line contact.

1 3. (original) The drill chuck defined in claim 2
2 wherein the front faces are planar, parallel to each other, and
3 perpendicular to the axis.

1 4. (currently amended) ~~The drill chuck defined in claim~~
2 ~~1 wherein the groove has~~ A drill chuck comprising:

3 a chuck body centered on an axis and formed with a
4 plurality of forwardly open angled guide passages spaced about the
5 axis and with a radially open groove having an axially rearwardly
6 directed front face, an axially forwardly directed rear face, and
7 an axially forwardly directed rear face, the chuck further compris-
8 ing ;

9 respective jaws displaceable generally axially in the
10 passages and each having a row of radially outwardly directed teeth
11 exposed at the groove;

12 a tightening ring engaged in the groove between the faces
13 thereof, having an internal screwthread meshing with the teeth of
14 the jaws, formed with a front face axially confronting the front
15 groove face, and rotatable on the body about the axis, whereby
16 rotation of the ring on the body in a tightening direction moves
17 the jaws axially forward and radially together and opposite rota-
18 tion moves them axially backward and radially apart;

19 an angled front spring washer engaged between the front
20 faces and elastically deformable on axial forward displacement of

21 the tightening ring to permit limited relative axial movement of
22 the ring and body; and

23 an angled rear spring washer engaged between the rear
24 face and the ring and elastically deformable on axial rearward
25 displacement of the tightening ring.

1 5. (original) The drill chuck defined in claim 4,
2 further comprising
3 formations between the chuck body and the rear washer for
4 preventing rotation of the rear washer relative to the body.

1 6. (original) The drill chuck defined in claim 5
2 wherein the formations include at least one radially directed bump.

1 7. (original) The drill chuck defined in claim 5
2 wherein the formations include a radially outwardly open pocket on
3 the body and a radially inwardly projecting bump formed on the rear
4 washer and engaged in the pocket.

1 8. (original) The drill chuck defined in claim 5
2 wherein the formations include radially inwardly projecting tabs
3 formed on the rear washer and engaging in the guide passages.

1 9. (original) The drill chuck defined in claim 5
2 wherein the formations include a plurality of angularly spaced and
3 radially outwardly open pockets on the body and complementary
4 radially inwardly projecting bumps formed on the rear washer and
5 engaged in the pockets.

1 10. (original) The drill chuck defined in claim 5
2 wherein the formations include axially extending and radially
3 outwardly projecting teeth formed on the body and complementary
4 radially inwardly projecting teeth formed on the ring and engaging
5 the body teeth.

1 11. (original) The drill chuck defined in claim 10
2 wherein the formations include axially extending and radially
3 outwardly projecting teeth formed on the jaws and engaging the ring
4 teeth.

1 12. (original) The drill chuck defined in claim 4,
2 further comprising
3 a roller bearing between the rear washer and the tighten-
4 ing ring.